REMARKS

Claims 36-41 were previously pending in the application. Claims 36 and 38 to 40 are being amended in this Response. Claim 37 is being cancelled without prejudice or disclaimer. New claims 42 to 51 have been added. No new matter has been added by these amendments or additions. A check in the amount of $1,110.00 is submitted herewith to cover the costs of the two month extension of time and the Request for Continued Examination. Please charge deposit account number 02-1818 for any insufficiency of payment or credit any overpayment.

In the Office Action, Claim 36 is rejected under 35 U.S.C. S 102(b) as being anticipated by United States Patent No. 5,757,263 to Ravindranathan ("*Ravindranathan*") and Claims 36-41 are rejected under 35 U.S.C. § 102(b) as being anticipated by United States Patent No. 5,527,443 to Chan ("*Chan*"). Claims 36-41 are also rejected under 35 U.S.C. § 103(a) as being unpatentable over United States Patent No. 4,290,041 to Utsumi et al. ("*Utsumi*") or United States Patent No. 5,075,665 to Taira et al. ("*Taira*") in view of United States Patent No. 5,021,921 to Sano et al. ("*Sano*") or United States Patent No. 5,093,774 to Cobb ("*Cobb*").

Regarding the rejection under *Ravindranathan*, Claim 36 as amended includes a varistor having a semiconductor body including conductive plates interleaved between zinc oxide layers. The surface of the semiconductor body has an untreated interior region and a plurality of separate terminal regions. Further, the varistor includes nickel barrier caps formed directly on the untreated terminal regions. The nickel barrier caps are formed by bringing only the terminal regions into contact with a nickel plating solution such that the nickel plating solution bonds to the terminal regions but not the semiconductive interior regions.

In contrast, *Ravindranathan* discloses forming the end terminals using "a conventional barrel plating method in which the entire device is immersed in a plating solution." *See, Ravindranathan*, col. 1, lines 33-36 (emphasis added). Since the entire device is plated in *Ravindranathan*, some of the plating must be removed to leave the plated end terminals. *See, Ravindranathan*, col. 1, lines 36-47. Accordingly, *Ravindranathan* does not disclose a semiconductor body having an untreated interior surface region as required by amended Claim 36. *Ravindranathan* also does not disclose nickel barrier caps that are formed by bringing only the terminal regions into direct contact with a nickel plating solution as required by amended Claim 36. Accordingly, Applicant respectfully submits that Claim 36 is patentably distinguished over *Ravindranathan*.

Regarding the rejection under *Chan*, amended independent Claim 39 includes all of the limitations of Claim 36. Applicant respectfully submits that *Chan* does not disclose conductive caps that are formed by bringing only the terminal regions of the semiconductor body into untreated and direct contact with a plating solution such that the plating solution bonds to the terminal regions as required by amended Claims 36 and 39. Indeed, *Chan* discloses the use of a sputtering method rather than a plating operation. *See*, *Chan*, col. 2, lines 19-21. *Chan* does not therefore disclose bringing selected portions of a semiconductor body into contact with a plating solution. Accordingly, Applicant respectfully submits that Claims 36-41 are patentably distinguished over *Chan*.

Applicant respectfully submits that, *Utsumi, Taira, Sano* and *Cobb*, even if combinable, do not teach or suggest a varistor having a semiconductor body with an untreated interior region and a plurality of separate terminal regions, wherein nickel barrier caps are formed by bringing only the terminal regions of the semiconductor body into contact with a nickel plating solution such that the nickel plating solution bonds directly to the terminal regions as required by the claimed invention. *Utsumi* is cited merely to show a coated varistor and does not teach the other limitations of the claimed invention. *Taira* requires that a ceramic and aluminum mixture, in the form of a paste or a green sheet be added to the end surfaces 17 and 18 of varistor body 16. *See*, *Taira*, col. 4, lines 42-47. Also, a mask is required in areas not having the past or sheet. *See*, *Taira*, col. 5, lines 44-47. External electrodes 21 and 22 are thereby formed at the ends 17 and 18. *See*, *Taira*, col. 5, lines 47-50. Thus, *Taira* is treated with the paste and the masks, which are required for forming the electrodes. In the present invention, however, the electrodes are selectively formed on a semiconductor body.

The Office Action cites *Sano* as teaching the nickel barrier, which would contact the silver electrodes of *Utsumi* and *Taira*. However, *Sano* teaches that barrier layer 7 is "formed by barrel plating using a nickel plating solution" rather than bringing only the terminal regions of the semiconductor body into contact with a nickel plating solution as required by the claimed invention. *See*, *Sano*, col. 5, lines 50-51. In the invention as claimed in Claim 39, if the entire semiconductor body is dipped into a nickel plating solution, the nickel plating adheres to the silver as well as the exposed semiconductor surfaces. Thus, the invention of Claim 39 cannot be made according to the teachings of *Sano*.

Alternatively, the Office Action cites *Cobb* as teaching dipping to provide a nickel barrier layer. However, since the device in *Cobb* is a nonconductive capacitor body, an electrode pick-up ink is needed to pick-up the termination layers. *See, Sano*, col. 2, lines 24-33. *Cobb* does not directly bring only the terminal regions of a semiconductor body into contact with a nickel plating solution as required by the Claim 36. Cobb, on the other hand, ambiguously describes "dipping" but does not state whether the entire device or only the ends with the pick-up are dipped. Cobb therefore does not sufficiently describe the claimed invention to be considered as teaching it to one of skill one of skill in the art. It stands to reason, however, that one would not go through the trouble of selectively dipping the capacitor in *Cobb*, since the nickel would only adhere to the sections of the device with the electrode pick-up if completely dipped. Moreover, bringing the capacitor body of *Cobb* into direct contact with a nickel plating solution will not produce the semiconductive device as claimed. Accordingly, Applicant respectfully submits that Claims 36-41, which include an untreated semiconductor body, are patentably distinguished over *Utsumi* or *Taira* in view of *Sano* or *Cobb*.

The Office Action takes Official Notice that it is well known in the art that capacitors and varistors can employ the same termination, citing *Chan* at Column 1. Applicant agrees that *Chan* discloses that a basket or barrel plating method is known for both capacitors and varistors, wherein the entire body is indiscriminently submersed in a plating solution. However, *Chan* goes on to disclose that a varistor, unlike a capacitor, has a conductive semiconductor body and that this "sensitivity to voltage change subjects the varistor to 'creepage' during the plating process." *See, Chan*, col. 1, lines 62-67. Thus, *Chan* discloses that the conductive properties of ceramic materials used in varistors presents problems when trying to use methods known for capacitors. *See, Chan*, col. 2, lines 12-21. Accordingly, Applicant respectfully submits that Official Notice should not be taken that all capacitor termination methods are applicable to varistors.

New Claims 42 to 44 depend directly from amended independent Claim 36. Accordingly, Applicant respectfully submits that new Claims 42 to 44 are each patently distinguished over the art of record. New Claims 45 to 47 depend from amended Claim 39. Accordingly, Applicant respectfully submits that new dependent Claims 45 to 47 are each patently distinguished over the art of record.

With respect to new Claims 48 to 51, new Claim 48 is the sole independent claim. Like independent Claim 36, new Claim 48 includes forming nickel barrier caps by directly contacting the

terminal regions of the semiconductor body with a plating solution in order to form a desirably thick nickel barrier cap over the terminal regions of the semiconductor body without forming a nickel barrier over the interior region of the semiconductor body. Accordingly, Applicant respectfully submits that new Claims 48 to 51 are patentable for the same reasons given for Claims 36-41.

For the foregoing reasons, Applicant respectfully submits that Claims 36-48 are patentably distinguished over the art of record. An earnest endeavor has been made to place this application in condition for formal allowance and in the absence of more pertinent art such action is courteously solicited. If the Examiner has any questions regarding the above amendment, Applicants respectfully requests that the Examiner contact the Applicant's attorney, Robert Connors at (312) 807-4214 to discuss the amendment.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Versions with Markings to Show Changes Made.**"

Respectfully submitted,

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BY _____

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Claim 36 has been amended as follows:

36. (Amended) A varistor comprising:

a semiconductor body ~~of interleaved resistive~~ including conductive plates interleaved between ~~and~~ zinc oxide layers, the body surface being untreated and including an ~~having an external surface of zinc oxide~~ interior region and a plurality of separate terminal regions ~~free of any passivation material~~; and

nickel barrier caps formed directly on the untreated terminal regions ~~opposing ends of the body, the nickel barrier caps terminating with naturally formed edges.~~ by bringing only the terminal regions into contact with a nickel plating solution such that the nickel plating solution bonds to the terminal regions but not the semiconductive interior region.

Claim 38 has been amended as follows:

38. (Amended) The varistor of Claim 36, wherein ~~a~~ each nickel barrier cap is between about 1 and about 3 ~~um~~ μm thick.

Claim 39 has been amended as follows:

39. (Amended) A varistor, comprising:

a semiconductor body including conductive ~~of interleaved resistive~~ plates interleaved between ~~and~~ zinc oxide layers, the body surface being untreated and including an ~~having an external surface of zinc oxide~~ interior region and a plurality of separate terminal regions; ~~free of any passivation material; and~~

silver barriers formed directly on the untreated terminal regions; and

nickel barrier caps formed on the silver barriers ~~opposing ends of the body, the nickel barrier caps terminating with naturally formed edges; and~~ by bringing only the silver barriers into contact with a nickel plating solution such that the nickel plating solution bonds to the silver barriers but not the semiconductive interior region.

~~silver barriers located between the body and the nickel barrier with naturally formed edges.~~

Claim 40 has been amended as follows:

40. (Amended) The varistor according to Claim 39, further including tin barriers ~~located on opposing ends of~~ formed on the nickel barrier caps.

Claim 37 has been cancelled without prejudice or disclaimer.

Claims 42 to 51 have been added.